

1. (Twice Amended) A genetically engineered fluorescent protein comprising a fluorescent protein which incorporates by insertion a protease cleavage site into a single fluorescent protein, cleavage of said fluorescent protein at said cleavage site by a protease causing the alteration of at least one of an emission and an excitation spectra of said fluorescent protein.
2. A fluorescent protein according to claim 1, being a green fluorescent protein.
3. (Amended) A fluorescent protein according to claim 2, said fluorescent protein having said cleavage site inserted between any pair of adjacent β -sheets of a loop structure of said green fluorescent protein.
4. (Twice Amended) A fluorescent protein according to claim 3, wherein said pair of adjacent β -sheets are selected from the group consisting of β -sheet pairs numbers 9 and 10, 5 and 6, and 8 and 9.
5. (Twice Amended) A fluorescent protein according to claim 3, said [modified] fluorescent protein having SEQ. ID NO: 41.
6. (Twice Amended) A fluorescent protein according to claim 1, wherein said single fluorescent protein is selected from the group consisting of a blue fluorescent protein, a cyan fluorescent protein, a yellow fluorescent protein, and a DsRed fluorescent protein.
7. (Amended) A fluorescent protein according to claim 1, said cleavage site having the sequence of SEQ ID NO: 4.
25. A fluorescent protein according to claim 1, said protease being a caspase.
26. (Amended) A fluorescent protein according to claim 25, said caspase being selected from the group consisting of caspase-3, caspase-6, caspase 7, caspase-8 and caspase-9.
28. (Amended) A genetically engineered fluorescent protein comprising:
a green fluorescent protein having a loop structure, said loop structure having incorporated therein a protease cleaving site, said loop structure positioned between a first β sheet of said fluorescent protein and a second β sheet of said fluorescent protein adjacent to said first β sheet wherein cleavage

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cont.

of said fluorescent protein at said cleavage site alters at least one of an emission spectra and an excitation spectra of said fluorescent protein.

30. The modified fluorescent protein according to claim 28 wherein said first β sheet and said second β sheet are selected from β sheet pairs consisting of β sheet pair 5 and 6, β sheet pair 8 and 9, and β sheet pair 9 and 10.
31. The modified fluorescent protein according to claim 28 wherein said modified fluorescent protein has an amino acid sequence according to SEQ. ID NO: 41.
32. The modified fluorescent protein according to claim 28 wherein said cleavage site defines a sequence according to SEQ. ID NO: 4.
33. The modified fluorescent protein according to claim 28 wherein said protease is a caspase.
34. The modified fluorescent protein according to claim 33 wherein said caspase is selected from a group consisting of caspase-3, caspase-8, and caspase-9.
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36. (Amended) A fluorescent protein according to claim 1 wherein said cleavage site has a sequence of SEQ. ID NO: 4.
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